

1. An isolated odontoprogenitor cell comprising a nucleic acid encoding an anti-inflammatory polypeptide

2. The cell of claim 1, wherein said cell is derived from a periodontal ligament..

3. The cell of claim 1, wherein said polypeptide is a cytokine.

4. The cell of claim 3, wherein said cytokine is interleukin-4 (IL-4).

5. The cell of claim 1, wherein said nucleic acid is operably linked to an osteoblast-specific promoter.

6. The cell of claim 5, wherein said osteoblast-specific promoter is an osteocalcin promoter.

7. The cell of claim 5, wherein said osteoblast-specific promoter is a bone sialoprotein promoter.

8. The cell of claim 1, wherein expression of said nucleic acid is inducible.

9. The cell of claim 1, wherein expression of said nucleic acid is regulated by an antibiotic compound.

10. The cell of claim 9, wherein said antibiotic compound is tetracycline or a tetracycline analogue.

11. The cell of claim 10, wherein said tetracycline analogue is minocycline or doxycycline.

12. A method of inhibiting osteolysis in a mammal, comprising introducing into said mammal an isolated odontoprogenitor cell comprising a nucleic acid encoding an anti-inflammatory polypeptide.

1 13. The method of claim 12, wherein said mammal is suffering from or at risk of  
2 developing periodontitis.

1 14. The method of claim 12, wherein said mammal is suffering from or at risk of  
2 developing alveolar bone loss due to periodontal disease.

1 15. The method of claim 12, wherein said cell is administered to the periodontal  
2 ligament in the mandibular section of the jaw.

1 16. An isolated osteoprogenitor cell comprising a nucleic acid encoding an anti-  
2 inflammatory polypeptide.

1 17. The cell of claim 16, wherein said polypeptide is a cytokine.

1 18. The cell of claim 17, wherein said cytokine is interleukin-4 (IL-4).

1 19. The cell of claim 16, wherein said nucleic acid is operably linked to an  
2 osteoblast-specific promoter.

1 20. The cell of claim 19, wherein said osteoblast-specific promoter is an  
2 osteocalcin promoter.

1 21. The cell of claim 19, wherein said osteoblast-specific promoter is an bone  
2 sialoprotein promoter.

1 22. The cell of claim 16, wherein expression of said nucleic acid is inducible.

1 23. The cell of claim 16, wherein expression of said nucleic acid is regulated by  
2 an antibiotic compound.

1 24. The cell of claim 23, wherein said antibiotic compound is tetracycline or a  
2 tetracycline analogue.

1 25. The cell of claim 24, wherein said tetracycline analogue is minocycline or  
2 doxycycline.

1 26. A method of inhibiting osteolysis in a mammal, comprising introducing into  
2 said mammal an isolated osteoprogenitor cell comprising a nucleic acid encoding an  
3 anti-inflammatory polypeptide.

1 27. The method of claim 26, wherein said cell is implanted into an articulating  
2 joint of said mammal.

1 28. The method of claim 26, wherein said cell is administered intratibially.

1 29. The method of claim 26, wherein said cell is administered intrafemorally.

1 30. The method of claim 26, wherein expression of said polypeptide is regulated  
2 by an antibiotic compound.

1 31. The method of claim 26, wherein said antibiotic compound is tetracycline or a  
2 tetracycline analogue.

1 32. The method of claim 31, further comprising administering minocycline to said  
2 mammal.

1 33. The method of claim 30, wherein said antibiotic compound is administered  
2 systemically.

1 34. The method of claim 26, further comprising administering an inhibitor of  
2 cyclooxygenase II (COX-2).

1 35. The method of claim 26, further comprising administering an inhibitor of  
2 tumor necrosis factor-alpha (TNF $\alpha$ ).

1 36. The method of claim 26, wherein said mammal is suffering from or at risk of  
2 developing rheumatoid arthritis.

1 37. The method of claim 26, wherein said mammal is suffering from or at risk of  
2 developing periapical or endochondral bone loss, artificial joint particle-induced  
3 osteolysis, or osteolytic bone metastases.

1 *July 02* 38. A method of inducing differentiation of a bone marrow stromal cell,  
2 comprising contacting said cell with bone morphogenic protein-6.

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